User Manual

DVM-HDBT-EX2

HD-BaseT-Extender

HDMI+2xIR+RS232 70m

NOTICE: Please read this user manual carefully before using this product. Pictures shown on this manual are for reference only, different model and specifications are subject to real product.

This manual is for operation instruction only, not for any maintenance usage. The functions described in this version are updated till April 2014. Any changes of functions and parameters since then will be informed separately. Please refer to the dealers for the latest details.

All product function is valid till 2014-04-28.

Update History

Version	Date	Update Content
1.0	2013.05.29	First version.
1.1	2013.11.29	Changed product design
1.2	2014.04.16	Modified package contents.
1.3	2014.04.28	Removed the built-in IR receiver and added collocation products.

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1. Introduction

1.1 Introduction

This is an HDMI/IR/RS232 twisted pair including transmitter and receiver. The Extender uses HDBaseT technology to deliver HDMI signal, max transmission distance up to 60 meters with CAT5e/CAT6 cable. CEC, bi-directional RS232&IR control, and POE are supported.

1.2 Features

- Support Full HD: Delivers high resolution image (1080p@60Hz@48 b/pixels/3D/4Kx2K).
- Max transmission distance is up to 60 meters over single CAT5e/CAT6 cable.
- High Bandwidth: 10.2Gps.
- HDTV Compatible, use HDMI 1.4 and HDCP compliant.
- Support PoC & CEC.
- Connect with a displayer to transmit EDID and HPD signals constantly by using a CAT5e cable.
- Use HDBaseT technology.
- Bi-directional RS232/IR control.
- LED indicators show work status.
- Wall/table-mountable aluminium enclosure, PT case design.

Note: Please use a CAT5e cable with low impedance (Shielded twisted pair will be better and should be well grounded) for good transmission effect.

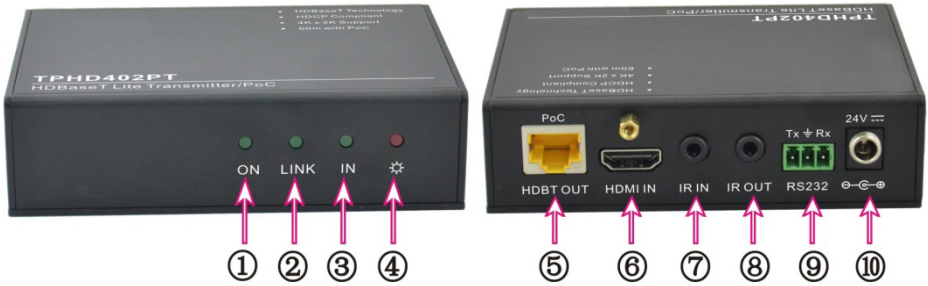
1.3 Package Contents

- 1 x Transmitter
- 1 x Receiver
- 4 x Mounting ears
- 8 x Plastic cushions
- 2 x RS232 cables
- 8 x Screws
- 1 x Power adapter (DC 24V/1.25A)
- 1 x User manual

Notes: Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

2. Introduction of Product Appearance

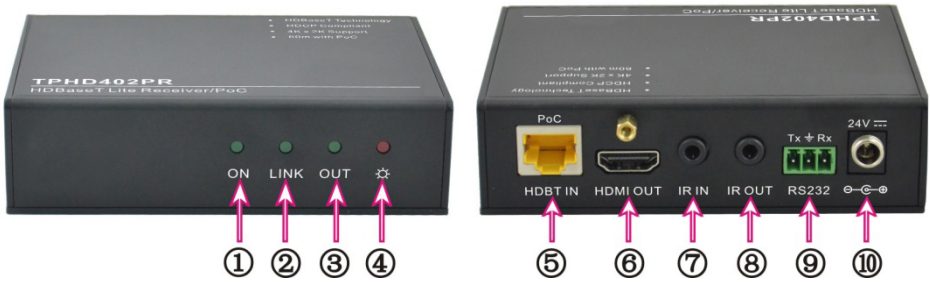
2.1 Transmitter



1) ON: Working status indicator of this device. When the device works fine, this green LED will keep blinking. And it will get off when the device stops work.
2) LINK: Twisted Pair Link status indicator, green LED. It will keep on when connection is successful.
3) IN: When connected with devices support HDCP and work normally this LED will keep on. If devices not support HDCP, this green LED will blink.
4) POWER LED: LED indicator of power. When connect with power, red LED will keep on.
5) HDBT OUT: Connect to the HDBT IN port of Receiver with a CAT5e cable.
6) HDMI IN: Connect to HDMI source.
7) IR IN: Connect with IR receiver, the IR signal received from this port can only send out in TPHD402PR.
8) IR OUT: Connect with IR sender, the sending IR signal are received from TPHD402PR.
9) RS232: RS232 connector.
10) 24V DC: Connect with power supply (Not necessary if Receiver connects with power).

Note: Pictures shown on this manual are for reference only, different model and specifications are subject to real product.

2.2 Receiver



1) ON: Working status indicator of this device. When the device works fine, this green LED will keep blinking. And it will get off when the device stops work.
2) LINK: Twisted Pair Link status indicator, green LED. It will keep on when connection is successful.
3) OUT: When connected with devices support HDCP and work normally this LED will keep on. If devices not support HDCP, this green LED will blink.
4) POWER LED: When connect with power, red LED will keep on.
5) HDBT IN: Connect to the HDBT OUT port of Transmitter with a CAT5e cable.
6) HDMI IN: Connect to HDMI display device.
7) IR IN: Connect with IR receiver, the IR signal received from this port can only send out in Transmitter.
8) IR OUT: Connect with IR emitter, the sending IR signal are received from Transmitter.
9) RS232: RS232 connector.
10) 24V DC: Connect with power supply (Not necessary if Transmitter connects with power).

Note: Pictures shown on this manual are for reference only, different model and specifications are subject to real product.

3. System Connection

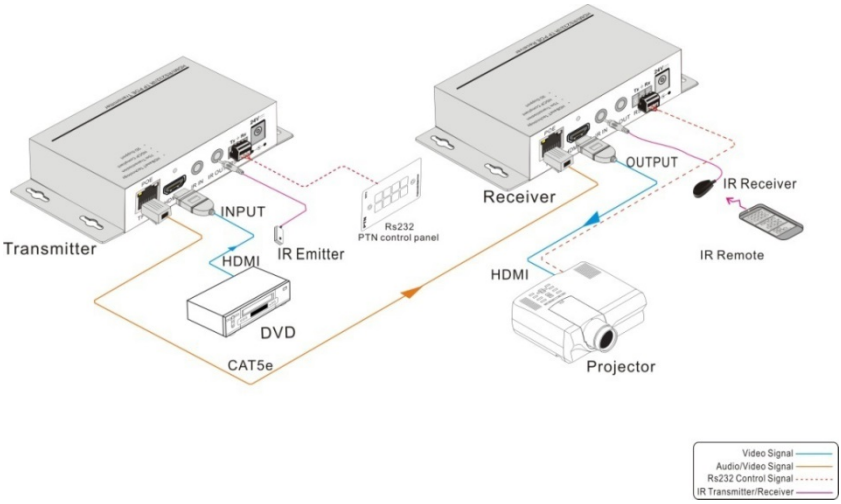
3.1 Usage Precautions

1) System should be installed in a clean environment and has a prop temperature and humidity.

2) All of the power switches, plugs, sockets and power cords should be insulated and safety.

3) All devices should be connected before power on.

3.2 System Diagram



3.3 Connection Procedure

Step1. Connect HDMI source (such as Blue-ray DVD) to HDMI IN port of transmitter Transmitter with HDMI cable.

Step2. Connect HDBT OUT port of Transmitter and HDBT IN port of Receiver, with single CAT5e/CAT6 cable.

Step3. Connect HDMI displayer (such as HDTV) to HDMI OUT port of Receiver with HDMI cable.

Step4. Both Transmitter and Receiver have IR IN and OUT. When one end is used as an IR receiver, the signal sent from the end can only be transmitted via the other end. **For example**: When “IR IN” of Transmitter connects with an IR receiver, the IR

transmitter must connect to IR OUT of Receiver.

Step5. Connect the RS232 port of the devices to be controlled and the receiver or the transmitter.

Connect with DC24V power adaptor(s) (One is enough if any end of Transmitter and Receiver is connected with adapter as its PoC function).

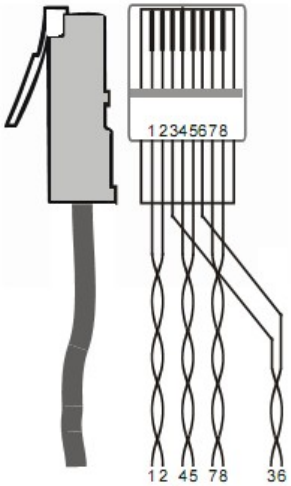
3.4 Application

The Extender has a good application in various occasions, such as computer realm, monitoring, big screen displaying, meeting room, education and bank & securities institution etc.

3.5 Twisted Pair Cable Connection

The twisted pair used in this extender MUST be a straight-through cable.

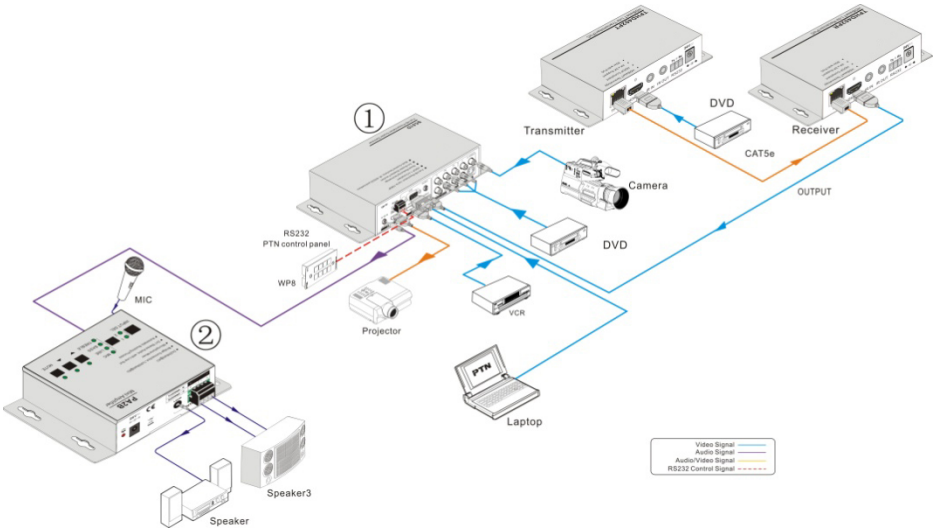
TIA/EIA T568A			TIA/EIA T568B	
Pin	Cable color		Pin	Cable color
1	green white		1	orange white
2	green		2	orange
3	orange white		3	green white
4	blue		4	blue
5	blue white		5	blue white
6	orange		6	green
7	brown white		7	brown white
8	brown		8	brown
1st Ground	4--5		1st Ground	4--5
2nd Ground	3--6		2nd Ground	1--2
3rd Group	1--2		3rd Group	3--6
4th Group	7--8		4th Group	7--8



Notice: Cable connectors MUST be metal one, the shielded layer of cable MUST be connected to the connector's metal shell, to make a better transmission.

3.6 Collocation Products

The Extender usually work together with other devices to extend the transmission distance of HDMI/IR/RS232 signal. Here are the most common collocation products.



Description:

1) SC61D (mini scaler switcher)

- 6 video Inputs: 2 x HDMI, 1 x VGA, 1 x YPbPr, 1 x C-video & 1 x S-video, and upscale to HDMI output at 1080P.
- Support VGA resolutions: 640x480, 800x600, 1024x768, 1280x1024, 1280x768, 1360x768@60Hz, 1920x1080.
- Built-in PAL/NTSC and audio format automatic identification technologies, with good video and audio processing technology for high performance.
- 3 audio outputs: HDMI embedded audio, 3.5mm stereo audio and Coaxial (SPDIF).
- Output display H/V size, position, image color adjustable and output image freezable.
- Built-in breakpoint memory and power-off protection function.

2) PA2B (mini digital amplifier)

- 2x20Watt@4Ohm as the default amplifier output.

- Bridge connection function. User can switch the PA2B to be 1x40Watt@8Ohm by bridge connection.
- 48V phantom power to support condenser microphone.

MIC port can support balance/unbalance signal, suppress the external noise effectively.

4. Specification

Model / Spec	Transmitter	Receiver
Input		
Input Signal	1 HDMI,1 IR & 1 RS232	1 IR, 1 RJ-45 & 1 RS232
Input Connector	HDMI female, 3.5mm mini jack, 3p captive screw connector	3.5mm mini jack, RJ-45, 3p captive screw connector
Video Signal	HDMI1.4	HDMI1.4
Audio	Digital audio, transmit through HDMI audio	Digital audio, transmit through HDMI audio
Output		
Output	1 RJ-45, 1 IR, 1 RS232	1 HDMI, 1 IR, 1RS232
Output Connector	RJ-45, 3.5mm mini jack, 3p captive screw connector	HDMI female, 3.5mm mini jack, 3p captive screw connector
Video signal	HDMI1.4	HDMI1.4
Transmission Mode	HDBase T	
General		
Resolution Range	800x600 ~ 1920x1200,3D,4Kx2K	
Transmission Distance	Max distance 70M	
Gain	0dB ~ 10dB@100MHz	
Differential Phase Error	±10° @ 135MHz_100M	
SNR	>70dB@ 100MHz-100M	
Bandwidth	10.2Gbps	
Return Lost	＜-30dB@5KHz	
THD	＜0.005%@1KHz	
HDMI Standard	Support HDMI1.4 and HDCP	

Min. ～Max. Level	＜0.3V ~ 1.45Vp-p	
Impedance	75Ω	
Temperature	-20 ~ +70℃	
Humidity	10% ~ 90%	
Power Supply	Input: 100VAC~240VAC, 50/60Hz Output: DC 24V, 1.25A	
Power Consumption	9.6W	
Case Dimension	W110.16xH28x D77 (mm)	W113.03xH28x D77 (mm)
Net Weight	0.5Kg	0.5Kg

NOTE: All nominal levels are at ±10%.

5. Troubleshooting & Maintenance

1) When images of terminal unit output with ghost, such as the projector output with ghost. Generally this is not a unit faulty, this may be caused by an incorrect setting on the projector or a bad quality of cable. Please check the projector's setting or try another high quality connection cable.

2) When there is a color losing or no video signal output, please check the input and output end connections of the cables.

3) When user cannot control the extender by computer through its COM port, please check the COM port number in the software and make sure the COM port is in good condition.

4) When switching, there is no output image:

- Check with oscilloscope or multimeter if there is any signal at the input end. If there is no signal input, it may be the input connection cord broken or the connectors loosen.
- Check with oscilloscope or multimeter if there is any signal at the output end. If there is no signal output, it may be the output connection cord broken or the connectors loosen.
- If it is still the same after the above checking, maybe there is something wrong in the extender. Please send it to the dealer for fixing.

If the static becomes stronger when connecting the video connectors, it probably due to bad grounding, please check the grounding and make sure it connected well, otherwise it would damage the extender

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